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May 2, 1995

VIA MESSENGER

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

MAY 2 1995

Re: ET Docket No. 93-7
Notice of Ex Parte Communication

Dear Mr. Caton:

On Monday, May 1, representatives of Echelon Corporation met with Mark A. Corbitt, Director, Technology Policy, of the Commission's Office of Plans and Policy, to discuss Echelon's views on the decoder interface proposals in ET Docket No. 93-7, as reflected in the attached handout provided during the meeting. Representing Echelon were Oliver R. Stanfield, Vice President and CFO, and Drew Hoffman, Vice President-Engineering, along with the undersigned counsel to Echelon.

Pursuant to Section 1.1206 of the Commission's Rules, two copies this letter are enclosed for filing. Please contact me should you have any questions in regard to this matter.

Sincerely,

Glenn B. Manishin

GBM:hs
Enclosure
cc (w/o encl.): Mark A. Corbitt

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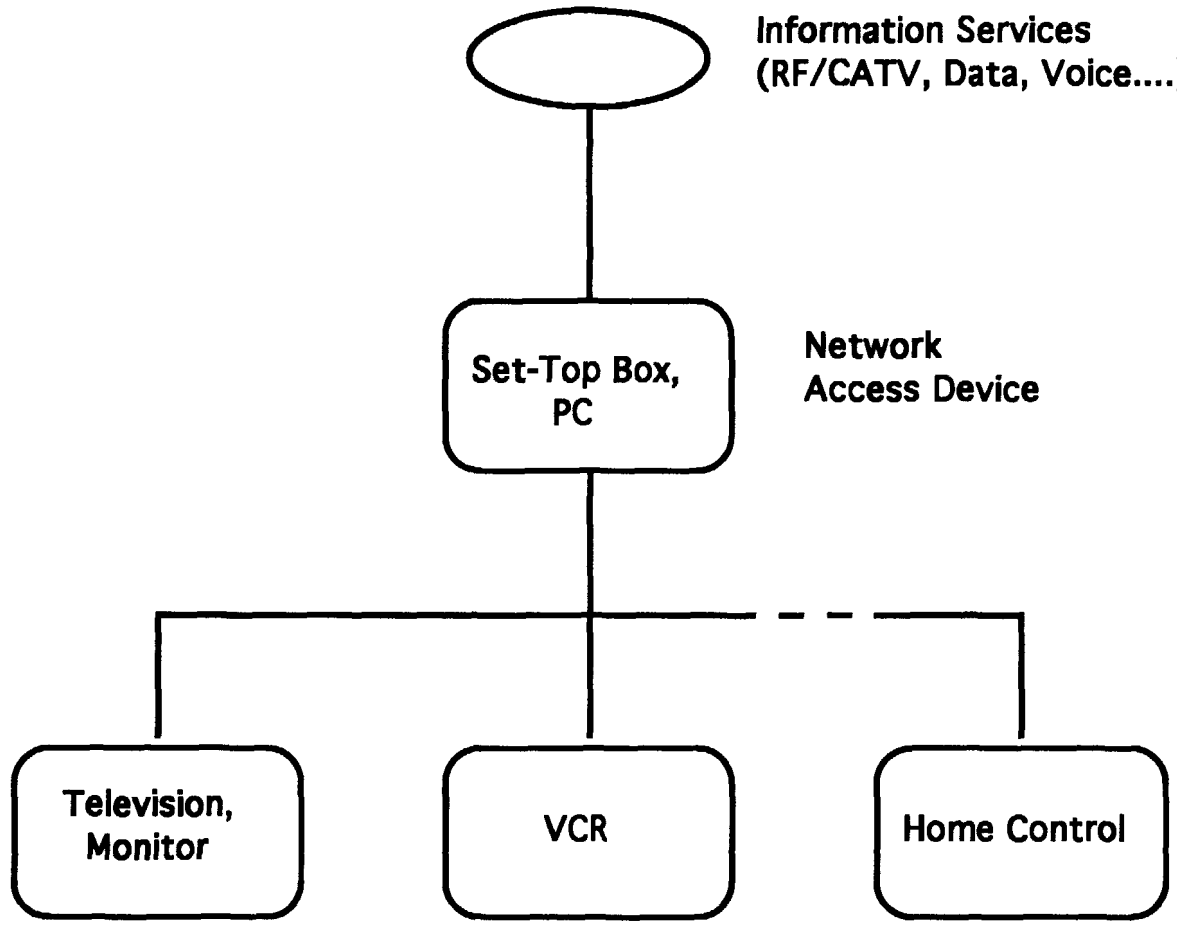
List A B C D E

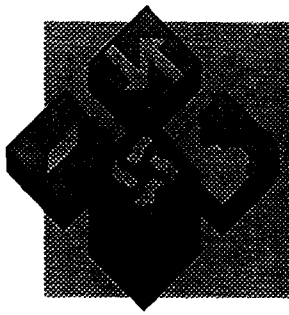
Architectural and Technical Issues in Cable Compatibilty



"Natural" Evolution of Convergence Technologies

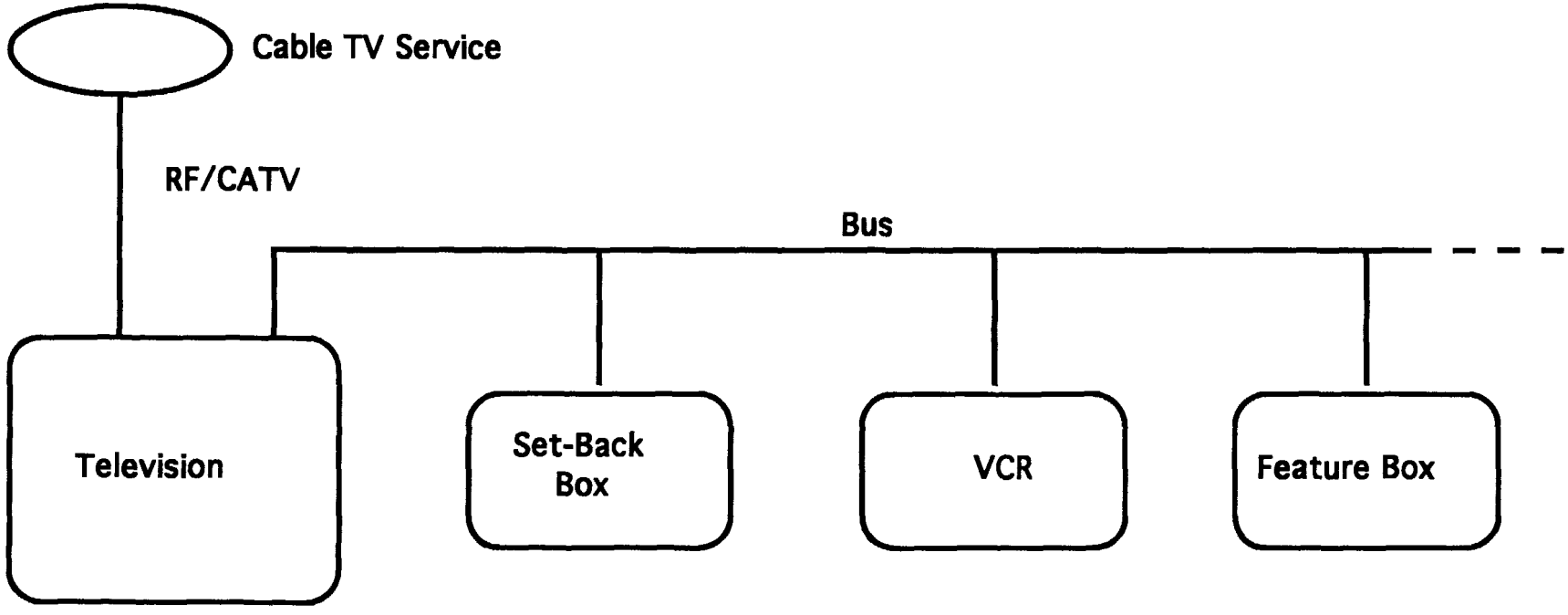
1992 Cable Act Section 17 Requirements

- **Sounds reasonable - asks FCC to issue rules to solve the following incompatibilities between analog CATV decoders and "cable ready" consumer electronics equipment**
  - Consumers must be able to use the following features of consumer electronics equipment when attached to a decoder, independent of whether channels received are in the clear or scrambled:
    - Simultaneous viewing and VCR recording
    - Recording of multiple programs on different channels
    - Picture-in-picture (PIP)

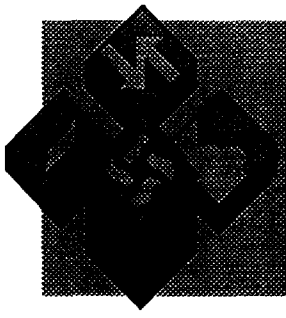


The Hidden Impact of the 1992 Cable Act Implementation

- **Solving today's small problems can have catastrophic future implications**
  - FCC has asked Cable Consumer Electronics Compatibility Advisory Group ("C3AG") for a solution
  - C3AG has come back and recommended a major shift in "architectural control" in the definition and interconnection of home consumer electronics products
  - This architectural shift will severely impede the development of "digital convergence" and information superhighway products and services
  - As a side effect, true marketplace competition in the nascent home automation market will be thwarted
    - IS-60 (CEBus), one of several home automation protocols in the marketplace, is being mandated as as part of the proposed decoder interface solution
  - Those parties not directly involved in the consumer electronics and cable industries must be made aware of the dramatic impact to their future business if this comes to pass



Proposed Cable/Consumer Electronics Decoder Interface Architecture

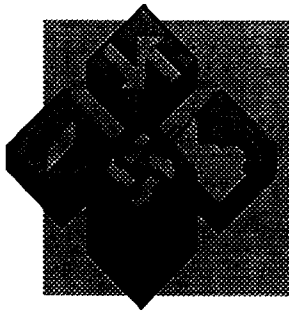


Implications of Current Decoder Interface Proposals

- **Negative ramifications of these proposals**
  - In these architectures, cable or other service connection must go through TV - the TV becomes the "gatekeeper" for the user interface to consumer services
  - This yields "architectural control" to the TV - set-top box becomes a "set-back" box which is a slave to the TV
  - Complex and unnatural partitioning of system elements - complex control bus such as IS-60 (CEBus) is not required
  - Life cycles for TVs are inherently very long (10-15 years) as compared with products and services being offered by set-top boxes making it impractical to replace TVs with every new feature and advance
  - Technical feasibility of these proposals is questionable
  - Complexity and cost of cabling and packaging

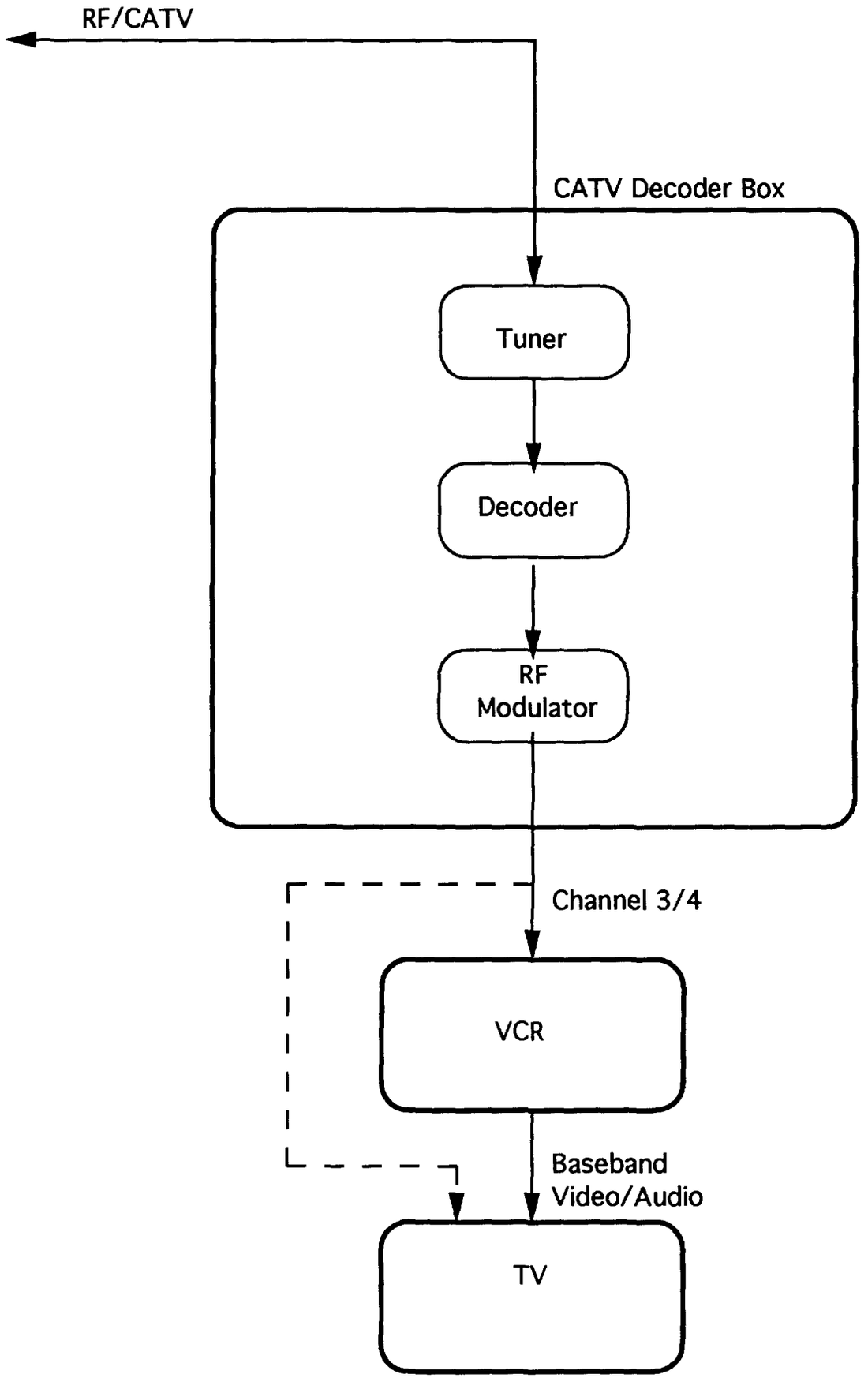
Creating a "Technological Straightjacket"

- **Future products and services will be impacted by these solutions - innovation will be stifled**
  - Future architectures should not be based on and constrained by current technology and assumptions - the approach is static and will soon be obsolete
  - Proposed architecture will severely restrict the ability to introduce innovative information superhighway services and products to consumers and will have a detrimental impact on this emerging marketplace
  - This should not be the subject of FCC regulation - the marketplace should be allowed to operate in choosing the most "natural" and cost-effective architecture for delivering these future system elements

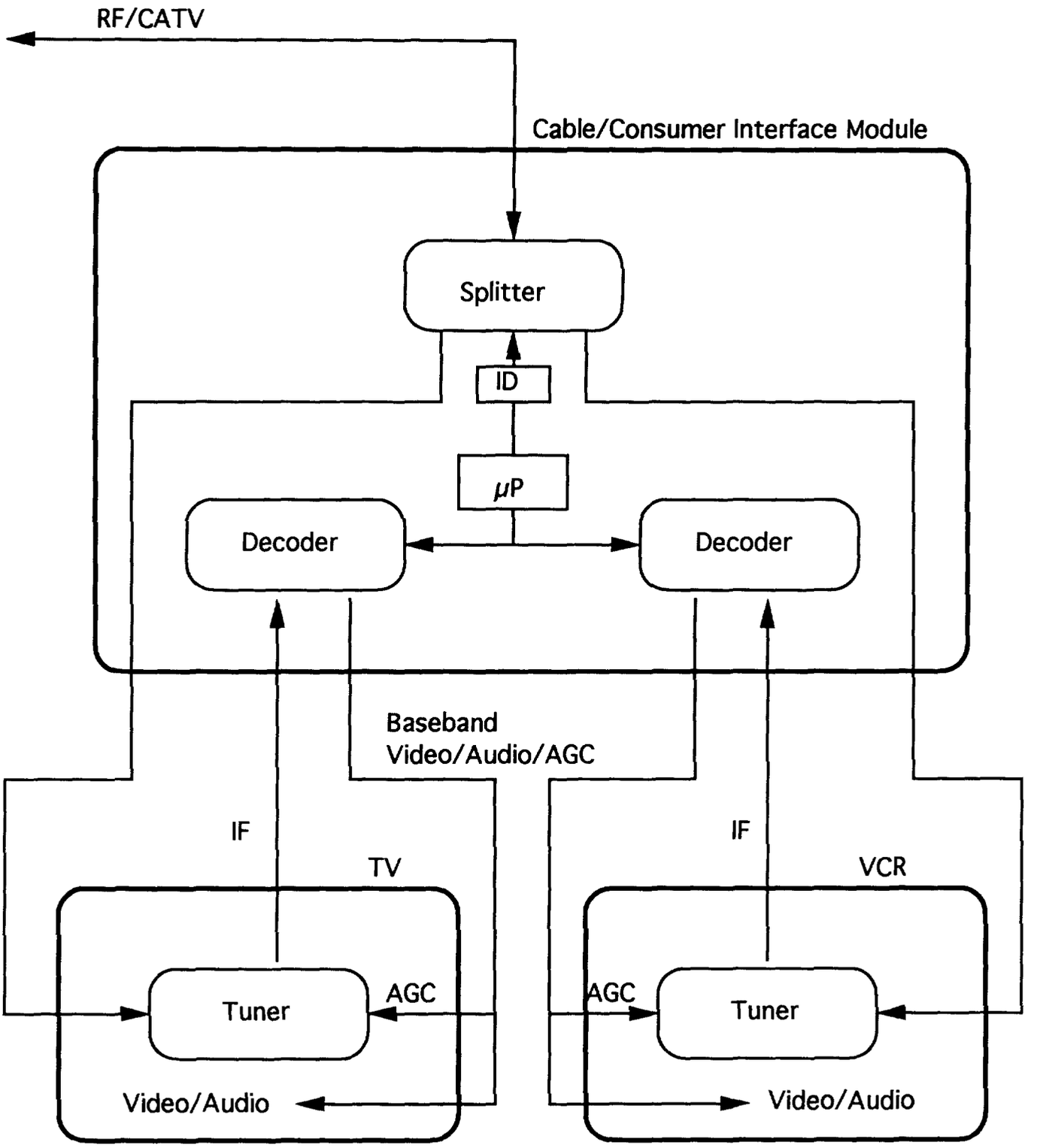


What Can Be Done?

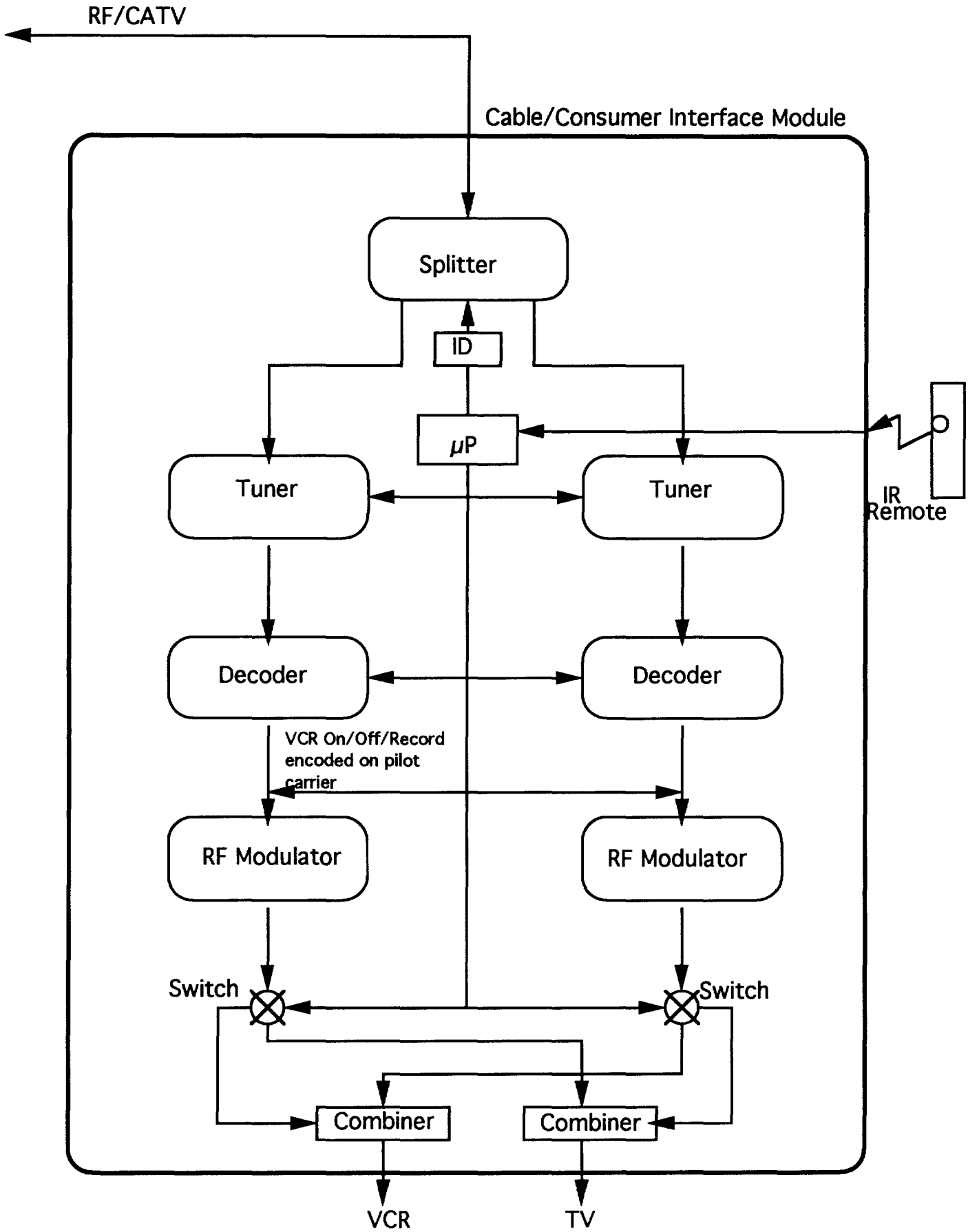
- **There are alternatives to this dilemma**
  - Alternative implementations can solve incompatibility problems in simple and straightforward ways
    - Without the use of a complex control bus such as IS-60 (CEBus)
    - Without establishing the TV as the gatekeeper
    - Reviewed by relevant industry participants
  - Some alternatives can use existing consumer electronics equipment without modification - existing products already exist in the marketplace that provide a solution



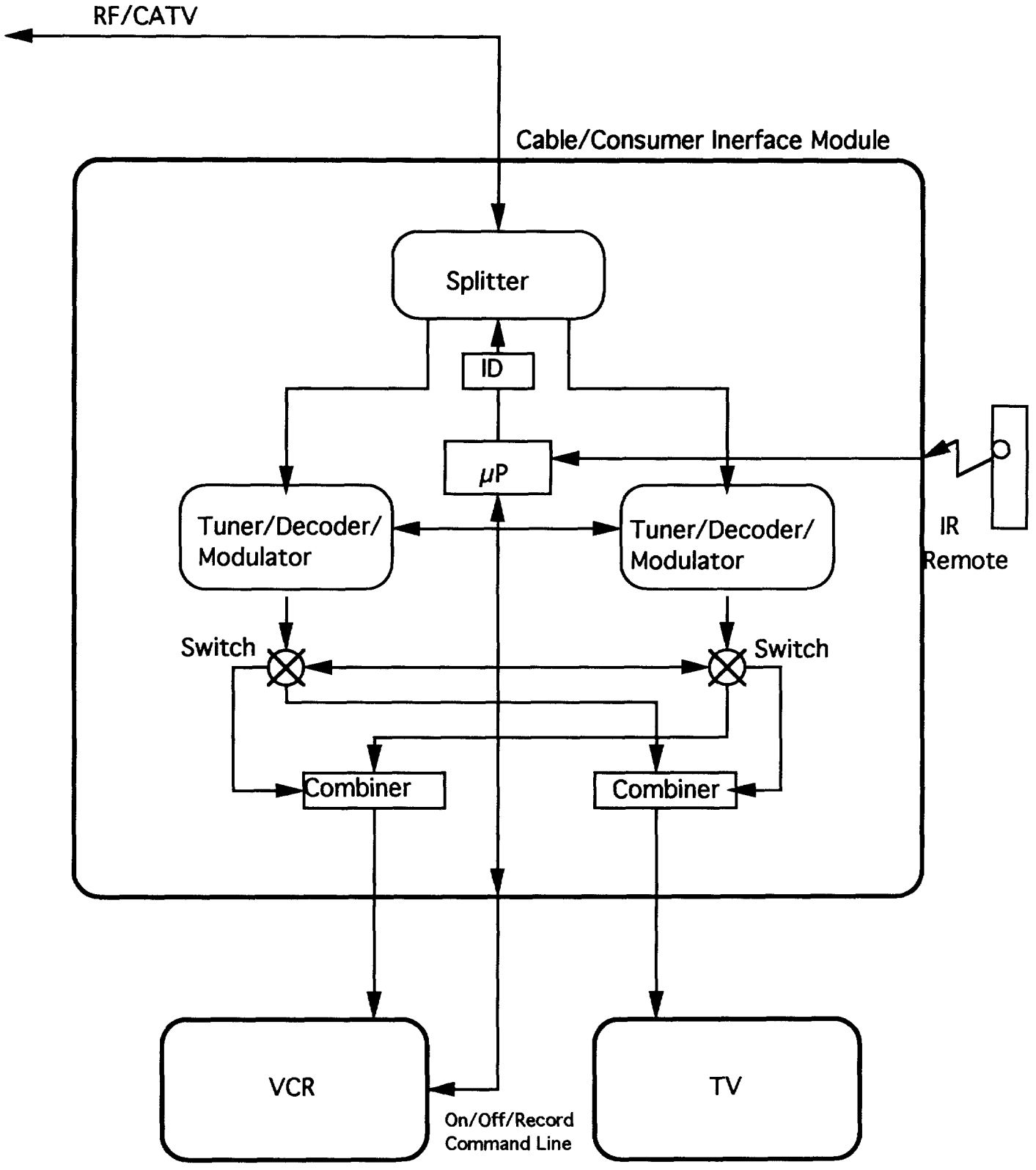
Typical Existing CATV Decoder/AV Equipment Connection



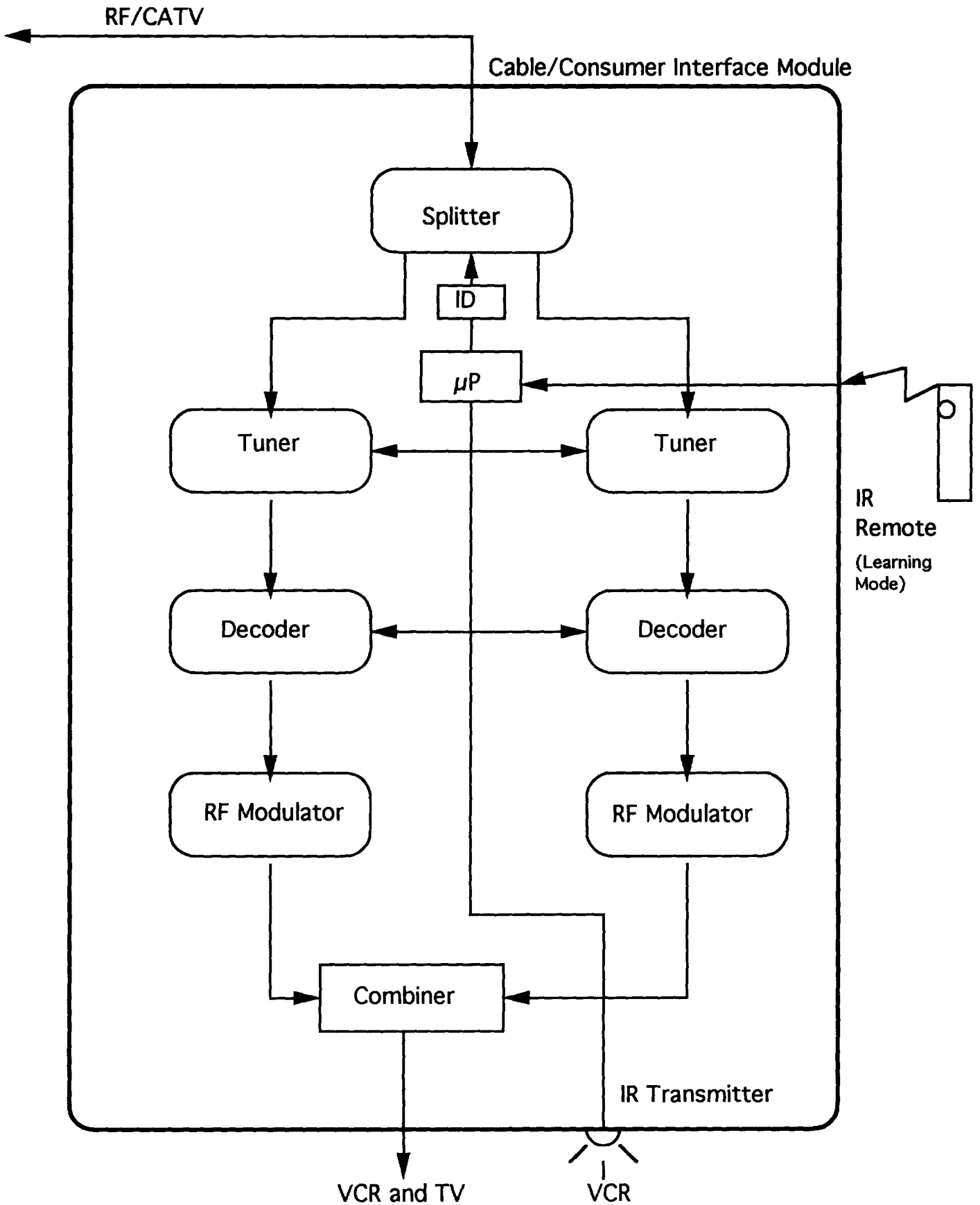
Alternative 1: Dual Component Decoder Approach



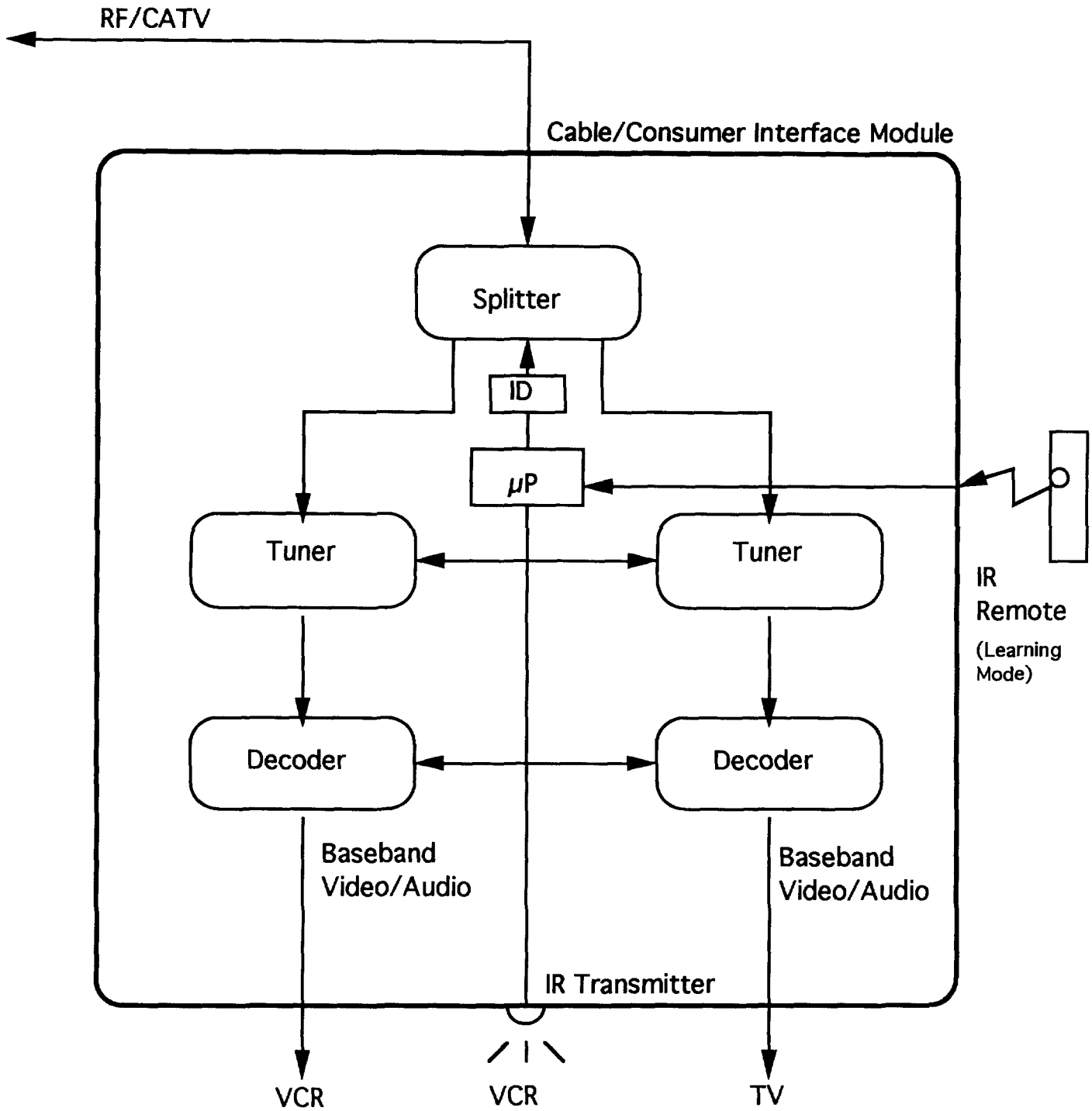
Alternative 2: Dual Tuner/Decoder Approach



Alternative 3: Dual Tuner/Decoder with Command Line Approach

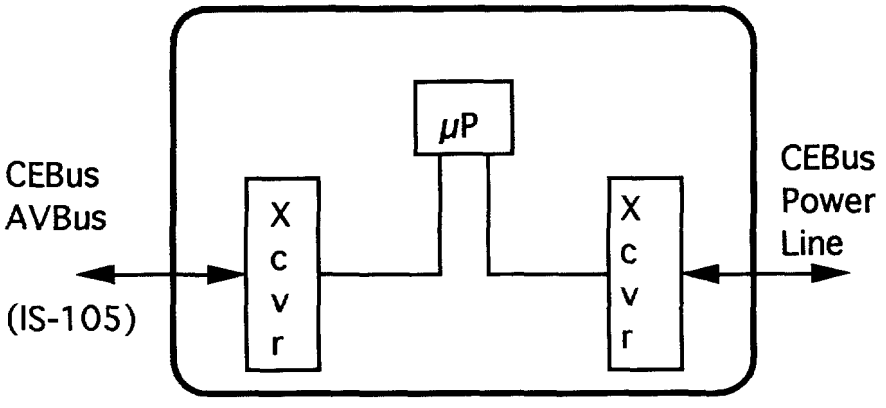


Alternative 4: Dual Tuner/Decoder with IR Communication Approach
Existing Similar Products - General Instrument Watch 'N Record™
Scientific Atlanta Tape 'N View™



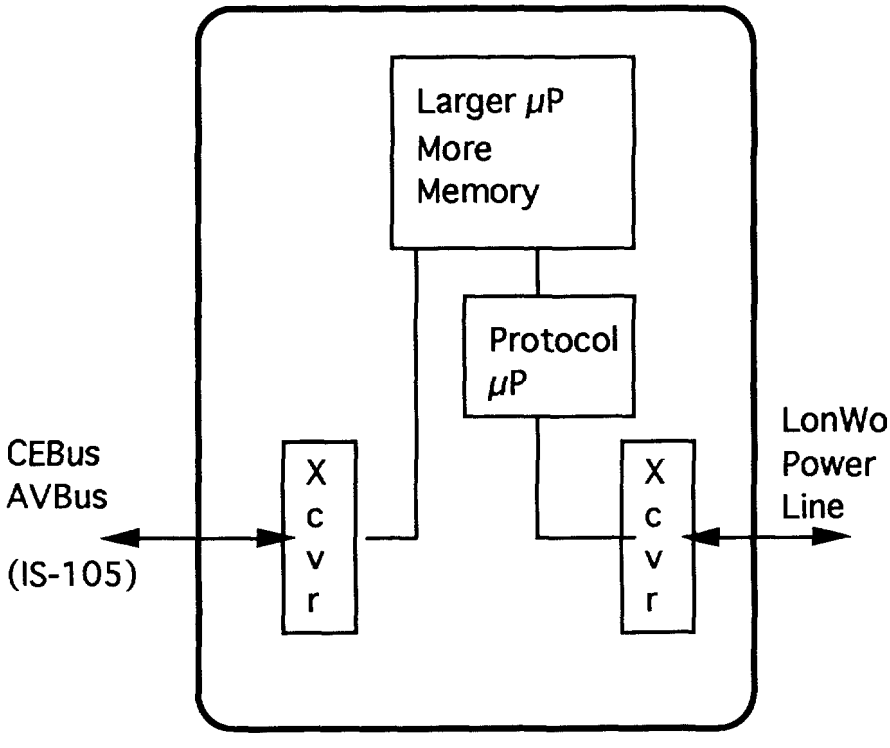
Alternative 5: Dual Tuner/Decoder with IR Communication Approach (Baseband Video/Audio)

CEBus to CEBus Router



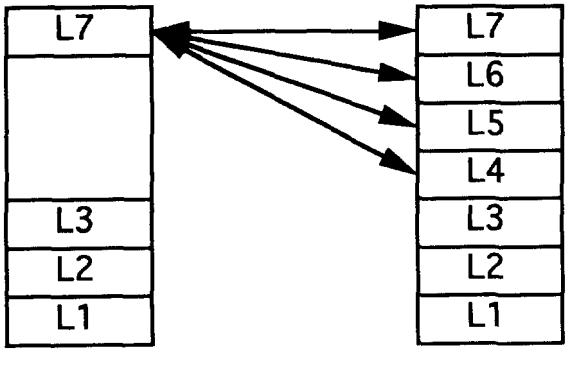
Simple bridge and repeter

CEBus to LonWorks Router



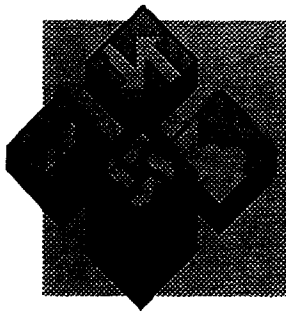
Protocol Conversion Complexities

- Address translation
- Layer 7 translation
- Network management
- End-to-end services
  - Acknowledgments
  - Authentication
  - Priority
- Speed mismatch
  - Larger buffers



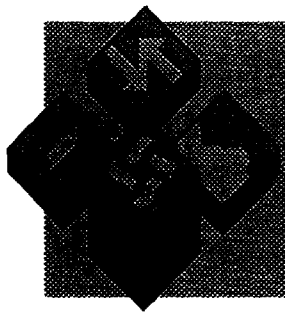
Easier Ways Exist

- **From FCC May 1994 Report and Order, 9 Record pp. 1988-1990, Rules for Existing Equipment, Paragraph 47:**
  - "We conclude that the supplemental equipment proposed in the *Notice* offers the means to achieve immediate relief for the compatibility problems between existing cable systems and consumer electronics equipment in cases where cable systems use scrambling technology and set-top boxes that do not deliver all authorized singals 'in the clear.' In such cases, devices such as by-pass switches and set-top devices that include multiple descramblers and/or timers that can, to a significant degree, provide cable subscribers with the ability to operate the types of special functions with their VCRs and TV recievers that are addressed in Section 17 of the 1992 Cable Act."
- **There are products available today which provide solutions**
  - Scientific Atlanta Tape 'N View™
  - General Instrument Watch 'N Record™



The Industry at a Crossroad

- **The Existing Analog World**
  - This is a technologically mature area
  - It is intrusive and inefficient to force the industry in the next few years to make a major engineering and manufacturing investment retooling products based on this declining technology
  - This will defocus US industry's effort away from the growth opportunities of the emerging digital convergence marketplace
    - This is an area where US companies are in the lead versus foreign competitors
  - There are products available today which can solve these simple incompatibilty issues as mentioned
  - If needed, there are several simple alternatives that have been developed and reviewed by the industry which would solve these issues without the use of a complex control bus architecture



Looking Forward to Convergence

- **The Future Digital World**
  - This is the area of "convergence" where significant new investment is occurring on all fronts - computers (hardware and software), network services, information content, consumer electronics.....
  - The bandwidth required for future advanced digital services and two-way interactivity cannot be crippled by having the TV act as a "gatekeeper" for information and the user interface coming into the home
    - The proposed decoder interface creates the precedent of establishing the TV in this role, both technically and from a consumer perspective
  - It is technically feasible to separate security features from other functions in a clean fashion in the digital world
    - Portable and renewable security technology can be packaged in small form factors such as SmartCards or PC Cards that can plug into set-top boxes or consumer electronics equipment
    - Standardize physical interface only leaving other interoperability issues for the market to decide